

CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended). A method of determining, in a fluid sample, a presence of particles having a substantially predetermined size or a substantially predetermined range of sizes, the method which comprises:

providing the sample in a chamber;

illuminating the sample in the chamber with a first wavelength of substantially horizontally and/or vertically polarized light,

obtaining a first response signal indicative of the first illumination,

illuminating the sample in the chamber with a second wavelength of light,

obtaining a second response signal indicative of the second illumination, and

determining the presence of the particles having the size or range of sizes,

~~while canceling out influences on the first signal and on the second signal due~~

~~to changes in the chamber that occur over time,~~ by subtracting the first signal from the second signal.

Claims 2-3 (canceled).

Claim 4 (previously presented). The method according to claim 1, wherein the second wavelength provides a response signal for particles having the substantially predetermined size or the substantially predetermined range of sizes and for particles not having the substantially predetermined size or the substantially predetermined range of sizes, and the first wavelength provides a response signal for particles not having the substantially predetermined size or outside of the substantially predetermined range of sizes.

Claim 5 (previously presented). The method according to claim 1, which further comprises: upon detecting particles of the predetermined size or the range of sizes, triggering an alarm signal.

Claim 6 (previously presented). The method according to claim 5, wherein the alarm signal is indicative of an alarm condition for a pyrolysis, smouldering and/or smoke event.

Claim 7 (previously presented). The method according to claim 1, which further comprises: providing the first wavelength as infrared light and the second wavelength as blue light.

Claim 8 (previously presented). The method according to claim 1, which further comprises: providing the first wavelength of light in the range of 650nm to 1050nm, and second wavelength of light ~~is~~ in the range of 400nm to 500nm.

Claim 9 (previously presented). The method according to claim 1, which further comprises:

illuminating the sample with at least one further wavelength of light, in which particles of at least one further size or range of sizes are relatively responsive to the further wavelength of light,

obtaining at least one further response signal indicative of the further illumination, and

determining the presence of the particles of the further size or range of sizes by comparing the first signal, the second signal, and the further signal.

Claim 10 (currently amended). The method according to claim 1, which further comprises: polarizing ~~at least one of the first illumination and the second illumination.~~

Claim 11 (currently amended). The method according to claim 1, which further comprises: horizontally and/or vertically polarizing ~~at least one of the first illumination and the second illumination.~~

Claim 12 (previously presented). The method according to claim 1, which further comprises: providing the first illumination as a relatively longer wavelength that is horizontally polarised and the second illumination as a relatively short wavelength that is vertically polarised.

Claim 13 (previously presented). The method according to claim 1, which further comprises: providing the first illumination as a red or infrared light that is horizontally polarised and providing the second illumination as a blue wavelength light that is vertically polarised.

Claim 14 (previously presented). The method according to claim 1, which further comprises: providing the first illumination as a red or infrared light that is horizontally polarised and providing the second illumination as a blue light that is un-polarised.

Claim 15 (currently amended). A particle monitor adapted to determine, in a fluid sample in a chamber, the presence of particle(s) having a predetermined range of size(s), the monitor comprising:

first illumination means for illuminating the sample in the chamber with a first wavelength of substantially horizontally and/or vertically polarized light, the first light being of a wavelength to which particles of a first size(s) are relatively responsive,

a first signal means for providing a first signal indicative of the first illumination, second illumination means for illuminating the sample in the chamber with a second wavelength of light, the second light being of a wavelength to which particles of a second size(s) are relatively responsive,

a second signal means for providing a second signal indicative of the second illumination, and

logic means for determining the presence of the particles in the predetermined range, ~~while canceling out influences on the first signal and on the second signal due to changes in the chamber that occur over time,~~ by subtracting the first signal from the second signal.

Claim 16 (currently amended). Apparatus adapted to detect, in a fluid sample in a chamber, particle(s) having a predetermined range of size(s), said apparatus comprising:

processor means adapted to operate in accordance with a predetermined instruction set, said apparatus, in conjunction with said instruction set, being adapted to perform the method comprising the steps of:

illuminating the sample in the chamber with a first wavelength of substantially horizontally and/or vertically polarized light,

obtaining a first response signal indicative of the first illumination,

illuminating the sample in the chamber with a second wavelength of light,

obtaining a second response signal indicative of the second illumination, and

determining the presence of the particles having the size or range of size(s); ~~while canceling out influences on the first signal and on the second signal due to changes in the chamber that occur over time,~~ by subtracting the first signal from the second signal.

Claims 17-66 (canceled).